General

Guideline Title

Guidelines for prevention and control of group A streptococcal infection in acute healthcare and maternity settings in the UK.

Bibliographic Source(s)

Steer JA, Lamagni T, Healy B, Morgan M, Dryden M, Rao B, Sriskandan S, George R, Efstratiou A, Baker F, Baker A, Marsden D, Murphy E, Fry C, Irvine N, Hughes R, Wade P, Cordery R, Cummins A, Oliver I, Jokinen M, McMenamin J, Kearney J. Guidelines for prevention and control of group A streptococcal infection in acute healthcare and maternity settings in the UK. J Infect. 2012 Jan;64(1):1-18. [88 references] PubMed

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The grades of recommendations (A–D, Good Practice Point) and levels of evidence (1++, 1+, 1-, 2++, 2+, 2-, 3, 4) are defined at the end of the "Major Recommendations" field.

Infection Prevention and Control of Group A Streptococcus (GAS) Infection

Reporting Cases

- All cases of suspected GAS infection identified in the acute care setting or maternity units and stand alone midwife led units and any cases identified within seven days of discharge or delivery that could have been healthcare-associated should be reported to the infection prevention and control team (IPCT).
- All invasive group A streptococcus (iGAS) cases should be discussed with and notified to the local health protection specialist by the relevant clinician and microbiologist.

(Scottish Intercollegiate Guidelines Network [SIGN] grading Good Practice Points)

Initial Investigations

- IPCT should establish whether the case is community or healthcare-associated.
- Further investigation of potential sources of infection is warranted for any case of GAS infection considered to be healthcare-associated.

(SIGN grading Good Practice Points)

Prospective and Retrospective Surveillance

- IPCT should undertake a retrospective analysis of microbiology and surveillance records to identify possible linked cases of healthcare-associated GAS infection arising in the past 6 months.
- IPCT should maintain GAS continuous alert organism surveillance to identify outbreaks which may arise over prolonged periods of time.
- Following a case of healthcare-associated GAS infection the IPCT should consider prospective enhanced surveillance which may include, for example, sampling of infected wounds of patients in the vicinity of the index case or who are being cared for by the same health care workers (HCWs).

(SIGN grading Good Practice Points)

Patient Isolation

- Patients with GAS should be placed in isolation for a minimum of 24 hours of effective antibiotic therapy.
- Cases of necrotising fasciitis and other cases where there is significant discharge of potentially infected body fluids or high risk of shedding, mothers and neonates on maternity units and patients on burns units, should be isolated until culture negative.

(SIGN grading D/Good Practice Points)

Personal Protective Equipment (PPE)

- HCWs should wear PPE including disposable gloves and aprons when in contact with the patient or their equipment and their immediate surroundings.
- Breaks in the skin must be covered with a waterproof dressing.
- Fluid repellent surgical masks with visors must be used at operative debridement/change of dressings of necrotising fasciitis and for procedures where droplet spread is possible.
- Visitors should be offered suitable information and relevant PPE following a risk assessment of the visitor's level of direct contact/involvement in the affected person's care.

(SIGN grading Good Practice Points)

Hand Hygiene

- HCWs must adhere to strict hand hygiene policy.
- Visitors should be offered suitable information and facilities to be able to adhere to standard infection control practice, including good hand hygiene.

(SIGN grading Good Practice Points)

Environmental Cleaning

- The isolation room, furniture, and equipment should be cleaned with detergent and water followed by hypochlorite at 1000 ppm daily (or combined detergent hypochlorite product).
- Communal facilities such as baths, bidets and showers should be cleaned and decontaminated between all patients especially on delivery suites, post-natal wards and other high risk areas, such as burns units.

(SIGN grading D/Good Practice Points)

Linen and Waste

- Whilst the patient is considered infectious, linen and waste must be handled as hazardous.

(SIGN grading Good Practice Point)

Transferring Patients

- Transfer only if unavoidable or essential for the patient's care.
- Details of the risk of infection must be effectively communicated to the ambulance service, the receiving facility, IPCT and if appropriate, the referring hospital.

(SIGN grading Good Practice Points)

Infections Occurring in Mothers and Babies

- Antibiotics should be administered to mother and baby, if either develops suspected or confirmed invasive GAS disease in the neonatal period (first 28 days of life).

(SIGN grading C)

- Pregnant women infected or colonised with GAS prior to admission should be treated and have this clearly documented in the maternity notes.

(SIGN grading Good Practice Point)

Transmission from Patient to Close Personal Contacts

- Antibiotics should not be routinely administered to all contacts of GAS cases.
- The local health protection specialist should be notified of all iGAS infections.
- Close contacts of iGAS cases should receive written information and have a heightened awareness of the signs and symptoms of GAS for 30 days after the diagnosis in the index patient.
- Close contacts of iGAS cases should seek urgent medical advice if they develop such symptoms within 30 days of a diagnosis in the index case in accordance with previous guidance.

(SIGN grading Good Practice Points)

Transmission from Patient to Healthcare Worker

- HCWs working without appropriate PPE whilst a patient is infectious should be advised about the signs and symptoms of GAS infection for 30 days after the diagnosis in the index patient and if symptomatic seek urgent medical advice.
- Any such exposures should be referred to occupational health. Antibiotic prophylaxis should be considered for HCWs who sustain a needle stick injury or direct contamination of mucous membranes or breaks in the skin with potentially infectious material.

(SIGN grading Good Practice Points)

Transmission from Healthcare Worker to Patient

- All HCWs in contact with the patient, either in direct contact or working in the close vicinity (patient's bed space), should be considered as possible sources of healthcare-associated GAS.
- HCWs in contact with a case of healthcare-associated GAS should be considered for screening if they have suffered a sore throat or skin infection, or have had skin lesions/dermatitis/eczema, vaginitis or pruritus ani within seven days of the onset of the infection in the patient. If so, the HCW should be seen and relevant swabs taken by occupational health. Isolates from positive swabs should be sent for typing along with the patient isolate if not already sent.
- The IPCT may decide to screen asymptomatic HCW in certain circumstances.

(SIGN grading D)

Communication with, and Advice to, Mortuary and Pathology Staff

- In the event of death, the hospital mortuary staff should be informed of the risk of infection and routes of transmission.
- Pathology staff should be informed when unfixed tissue from a case of necrotising fasciitis is sent for examination.

(SIGN grading Good Practice Points)

Communication with, and Advice to, Close Contacts

- Suitable and accurate information should be provided promptly to the patient and close personal contacts for iGAS infections.
- Effective hand over between health care teams should ensure communication with the patient with iGAS infection and their close personal contacts is consistent, accurate and documented.

(SIGN grading Good Practice Points)

Management of an Outbreak of GAS Infection

Formation of Outbreak Control Team

- An outbreak control team should be convened to manage and control an outbreak of GAS infection.

(SIGN grading D)

Screening of Healthcare Workers

- Initial HCW screening should include throat and skin lesions.
- HCWs may need to be examined for skin lesions and dermatitis by an occupational health practitioner.
- Other sites known to be implicated in transmission are nose, anus, and vagina, and screening of these sites is advised when a HCW is implicated in transmission and throat and skin lesions are negative.

(SIGN grading D)

Environment as Source of Outbreak

- The method and frequency of cleaning and decontamination of equipment and relevant ward areas should be reviewed.
- Communal facilities such as baths, bidets and showers should be decontaminated between all patients especially on delivery suites, post-natal wards and other high risk areas, such as burns units.

(SIGN grading C)

Environmental Sampling

- In a possible outbreak environmental sources of transmission should be considered and relevant sampling undertaken.

(SIGN grading D)

Use of Chemoprophylaxis

- Recommendations for chemoprophylaxis should be made by the outbreak control team on a case by case basis.

(SIGN grading D)

Communication Strategy

- Patients, close contacts and HCWs should be provided with clear, concise information about the outbreak.
- Information should be provided to relevant HCWs to encourage heightened awareness of the symptoms of GAS, to take specimens from symptomatic patients, give early treatment where GAS is suspected, and promptly notify the outbreak control team.
- Consider active involvement of a press officer to deal with media enquiries.

(SIGN grading Good Practice Points)

Management of Colonised and Infected Healthcare Workers

Eradication of Carriage

- HCW contacts who have been screened and found to be positive for GAS should receive eradication therapy.
- Clearance screens should be taken 24 hours after completing treatment, and again at 1, 3, 6, and 12 weeks following the end of treatment.

(SIGN grading D)

Pharyngeal Carriage

- Treatment options include oral penicillin V (500 mg four times a day for 10 days), amoxicillin (500 mg three times a day for 10 days), clindamycin (300 mg four times a day for 10 days), or azithromycin (maximum dose of 500 mg once a day) for 3 days.
- Clindamycin (300 mg four times a day for 10 days) should be used for eradication of throat carriage in cases where first-line therapy with penicillin has been unsuccessful.

(SIGN grading D)

Non-Pharyngeal Carriage

- Penicillin treatment alone may not be sufficient. Treatment options include clindamycin 300 mg four times a day for 10 days, or azithromycin 12 mg per kg per day (maximum 500 mg once a day) for 5 days with some limited reports in literature of combining with oral rifampicin or oral vancomycin.

(SIGN grading D)

Failure of Eradication

- Persistent or recurrent GAS colonisation may indicate re-colonisation within the household. Screening of household contacts should be considered in such circumstances.
- When considered necessary by the IPCT or occupational health physician, the health protection specialist should liaise with general practitioners (GPs) regarding screening and treatment of close household contacts of HCWs infected or colonised with GAS.

(SIGN grading D)

Length of Exclusion from Work

- HCWs with symptomatic GAS pharyngitis should stay away from clinical work until at least 24 hours of appropriate therapy and resolution of symptoms has occurred. Asymptomatic HCWs should stay away from work until 24 hours of appropriate therapy.
- A longer period of time may be required for HCWs with skin lesions or in other circumstances where carriage has been linked to an outbreak or confirmed transmission. This should be at the discretion of the IPCT team in liaison with the occupational health practitioner and discussed on a case-by-case basis after a risk assessment.

(SIGN grading Good Practice Points)

Microbiological Investigation

- GAS isolates from invasive disease should be referred to the reference laboratory for typing.
- The reference laboratory should be contacted if an outbreak is being investigated.

(SIGN grading Good Practice Points)

- Save all GAS isolates from in-patients, peri-partum patients, neonates, and those from post-operative wounds for six months.

(SIGN grading D)

Definitions:

Grades of Recommendation

Note: The grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation.

A: At least one meta-analysis, systematic review, or randomised controlled trial (RCT) rated as 1++, and directly applicable to the target population; *or*

A body of evidence consisting principally of studies rated as 1+, directly applicable to the target population, and demonstrating overall consistency of results

B: A body of evidence including studies rated as 2++, directly applicable to the target population, and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 1++ or 1+

C: A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 2++

D: Evidence level 3 or 4; *or*

Extrapolated evidence from studies rated as 2+

Levels of Evidence

1++: High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias

1+: Well conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias

1-: Meta-analyses, systematic reviews, or RCTs with a high risk of bias

2++: High quality systematic reviews of case control or cohort studies

High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal

2+: Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal

2-: Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal

3: Non-analytic studies, e.g., case reports, case series

4: Expert opinion

Clinical Algorithm(s)

The following algorithms are provided in the original guideline document:

- Management of a single case of GAS infection
- Management of an outbreak of GAS infection
- Management of colonised and infected healthcare workers by occupational health

Scope

Disease/Condition(s)

Healthcare-associated group A streptococcal (GAS) infection

Note: These guidelines discuss prevention and control of GAS infection, but do not cover diagnosis and treatment which should be discussed with an infection specialist. *Healthcare-associated GAS infection* is neither present nor incubating at the time of admission but considered to have been acquired following admission to the hospital or as a result of healthcare interventions in other healthcare facilities.

Guideline Category

Counseling

Management

Prevention

Risk Assessment

Screening

Clinical Specialty

Emergency Medicine

Family Practice

Infectious Diseases

Internal Medicine

Nursing

Obstetrics and Gynecology

Intended Users

Advanced Practice Nurses

Hospitals

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

To provide an evidence-based systematic approach to the investigation of single cases or outbreaks of healthcare-associated group A streptococcus (GAS) infection in acute care or maternity settings

Target Population

Patients at risk for group A streptococcus (GAS) through contact with healthcare or maternity services

Interventions and Practices Considered

1. Reporting potential healthcare-associated cases of group A streptococcal (GAS) to the infection prevention and control team (IPCT)
2. Further investigation and retrospective analysis by IPCT
3. Isolation of all GAS patients and treatment with antibiotic therapy
4. Personal protective equipment (PPE) and strict hand hygiene
5. Suitable information and medical advice for visitors and close contacts to prevent transmission
6. Decontamination of isolation room and communal facilities
7. Transfer of patient only if unavoidable
8. Communication of details of infection to receiving facility, ambulance service, and IPCT
9. Convening of outbreak control team
10. Screening of healthcare workers
11. Environmental sampling
12. Chemoprophylaxis

Major Outcomes Considered

- Healthcare-associated group A streptococcal (GAS) infection
- Routes of transmission (e.g., patient to patient, healthcare worker to patient)
- Eradication of carriage
- Outbreak of GAS infection

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A literature review was undertaken in November 2009 which included case reports, outbreak/cluster investigation reports, retrospective and prospective surveillance studies and national guidelines. The following sources were searched: Medline (1950 onwards), the Cochrane Library and The National Health Service Centre for Reviews and Dissemination. Reports from working groups, expert committees and the Royal Colleges were also included. The key word search used the following individual terms and combined the terms using AND/OR: infection control, healthcare associated infection; nosocomial; maternity; health care workers; clusters; surgical; outbreaks; transmission; puerperal sepsis; group A, C and G and beta-hemolytic streptococcus; *Streptococcus pyogenes*; invasive; antibiotic prophylaxis; carriage. The search was not restricted according to language of publication; the only restriction was to human studies. Relevant studies identified from the electronic search were reviewed for relevance by title and abstract. The full text of studies of potential relevance was retrieved. All studies identified also had their references checked for relevant articles. To identify national guidelines that might not be published in the scientific literature, direct contact was made with leading streptococcal researchers across the world.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence

1++: High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias

1+: Well conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias

1-: Meta-analyses, systematic reviews, or RCTs with a high risk of bias

2++: High quality systematic reviews of case control or cohort studies

High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal

2+: Well conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal

2-: Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal

3: Non-analytic studies, e.g., case reports, case series

4: Expert opinion

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Relevant papers were reviewed and graded using the Scottish Intercollegiate Guidelines Network (SIGN) method by a minimum of two independent members of the working group.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The guidelines were formulated by a formally convened multidisciplinary working group with representation from key clinical and public health professional bodies, as well as patient representation through the inclusion of a patient support charity. Recommendations were formulated on the basis of strength of evidence of effectiveness, or expert opinion where evidence was lacking or equivocal, potential adverse impact, and practicability. Draft recommendations were subject to external review via an open consultation process.

Rating Scheme for the Strength of the Recommendations

Grades of Recommendation

Note: The grade of recommendation relates to the strength of the evidence on which the recommendation is based. It does not reflect the clinical importance of the recommendation.

A: At least one meta-analysis, systematic review, or randomised controlled trial (RCT) rated as 1++, and directly applicable to the target population; *or*

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Extrapolated evidence from studies rated as 1++ or 1+

C: A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; *or*

Extrapolated evidence from studies rated as 2++

D: Evidence level 3 or 4; *or*

Extrapolated evidence from studies rated as 2+

Good Practice Points: Recommended best practice based on the clinical experience of the guideline development group

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

In accordance with the Health Protection Agency Policy and Guidance on the Development and Delivery of High Level Scientific Advice (OP001), these guidelines were open to public consultation for a three month period (14 May to 6 August 2010). All comments received were shared with Working Group members with the designated senior responsible officer (SRO), Dr Joe Kearney, taking responsibility for analysing and responding to all comments.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Prevention and control of group A streptococcal infection in acute healthcare and maternity settings

Potential Harms

- Decontamination of the patient's implicated equipment before environmental sampling has taken place may lead to false negative results.
- Side effects of antimicrobial therapy

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Chart Documentation/Checklists/Forms

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Safety

Identifying Information and Availability

Bibliographic Source(s)

Steer JA, Lamagni T, Healy B, Morgan M, Dryden M, Rao B, Sriskandan S, George R, Efstratiou A, Baker F, Baker A, Marsden D, Murphy E, Fry C, Irvine N, Hughes R, Wade P, Cordery R, Cummins A, Oliver I, Jokinen M, McMenamin J, Kearney J. Guidelines for prevention and control of group A streptococcal infection in acute healthcare and maternity settings in the UK. J Infect. 2012 Jan;64(1):1-18. [88 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2012 Jan

Guideline Developer(s)

Public Health England - Professional Association

Source(s) of Funding

Health Protection Agency

Guideline Committee

GAS Guideline Development Working Group

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Financial Disclosures/Conflicts of Interest

All participants were asked to declare any conflict of interest, and there were none declared.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the British Infection Association Web site.

Availability of Companion Documents

A sample healthcare worker screening letter for management of a single case of group A streptococcus (GAS) acquired in the acute care setting is available in the appendices to the original guideline document.

Patient Resources

A patient information leaflet and a patient contact information leaflet are available in the appendices to the original guideline document.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This NGC summary was completed by ECRI Institute on November 28, 2012. The information was verified by the guideline developer on January 4, 2013.

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